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Ultrasonographic Assessment of Inferior Vena Cava Distensibility After Cardiac Arrest (Poster)

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ULTRASONOGRAPHIC ASSESSMENT OF INFERIOR VENA CAVA DISTENSIBILITY AFTER CARDIAC ARREST

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BACKGROUND: Post-cardiac arrest hypotension is associated with mortality and poor neurological outcome among survivors. Finding new approaches to identify the etiology of post-cardiac arrest hypotension is a high priority for resuscitation science. Increased inferior vena cava (IVC) distensibility has previously been demonstrated to be predictive of fluid responsiveness. However, the utility of measuring IVC distensibility after cardiac arrest is currently unclear. Our objectives were to determine if increased IVC distensibility is common and associated with hypotension after cardiac arrest.

METHODS

- Prospective cohort study in single academic hospital
- Inclusion criteria:
 - >18 years
 - Cardiac arrest
 - ROSC
 - Unresponsive immediately after ROSC
 - Mechanically ventilated
- Exclusion criteria:
 - Pregnancy
 - Trauma
- Performed bedside US during initial 6 hours after ROSC → measured IVC distensibility
- **IVC distensibility = [maximum AP diameter – minimum AP diameter]/minimum AP diameter**

- **Patient demographics:** 59% Men and 41% Women, 69% White, 25% Black, 6% Other race
- Of 40 included patients, 14 (35%) had increased IVC distensibility
- We found similar mean MAP among patients with IVC distensibility <18% vs. ≥18%, 91 mmHg (95% CI 77 - 105) vs. 98 mmHg (95% CI 83 - 112) respectively (Figure 2)
- Hypotension occurred in 24% of the entire cohort
- Increased IVC distensibility occurred in 22% of patients with hypotension and 36% of patients without hypotension, (Figure 3) [absolute risk difference -13% (95% CI -46 to 19)]

RESULTS

Figure 1: Arrest Location

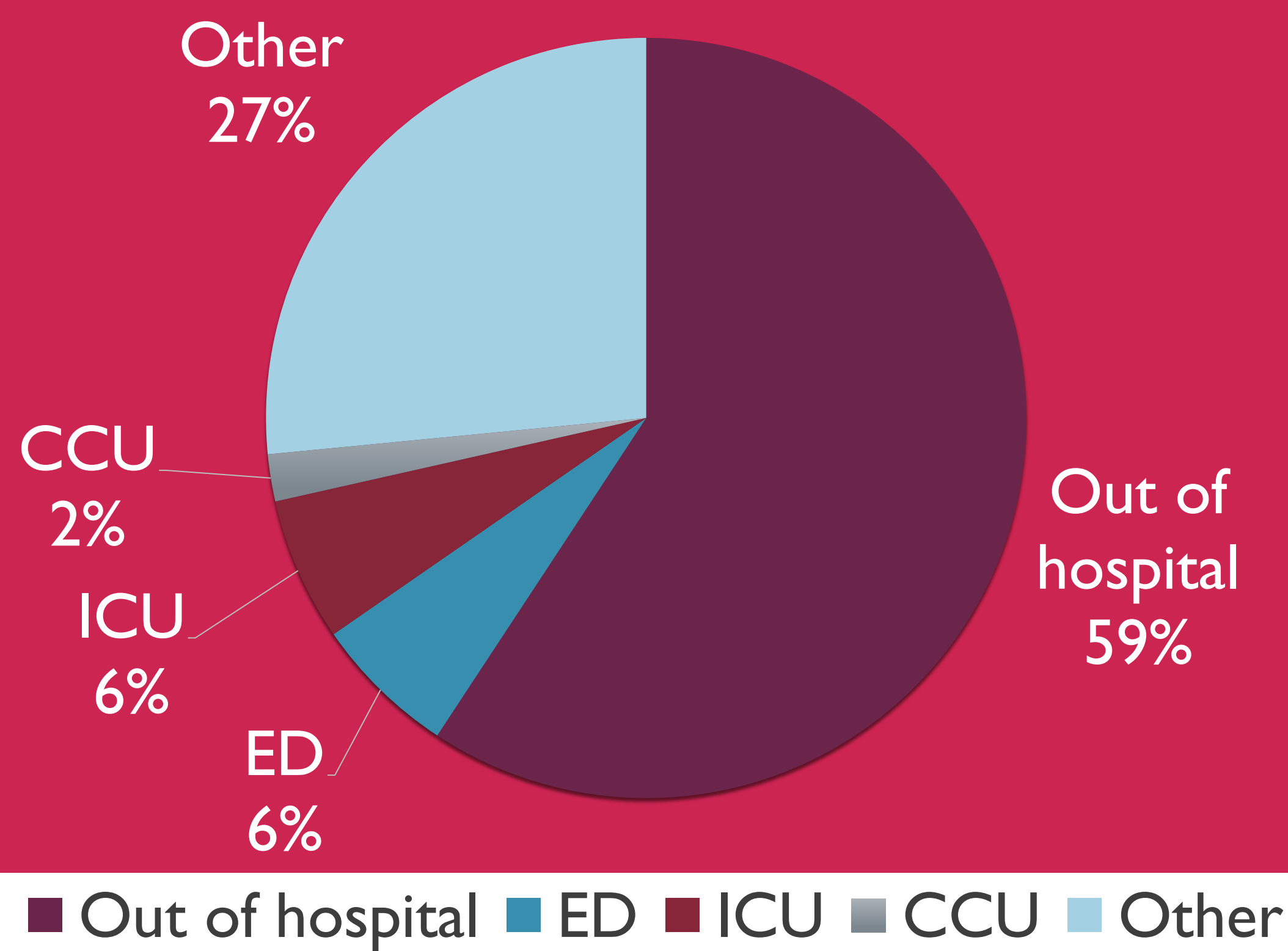


Figure 2: Similar mean MAP among patients with IVC distensibility <18% vs >18%

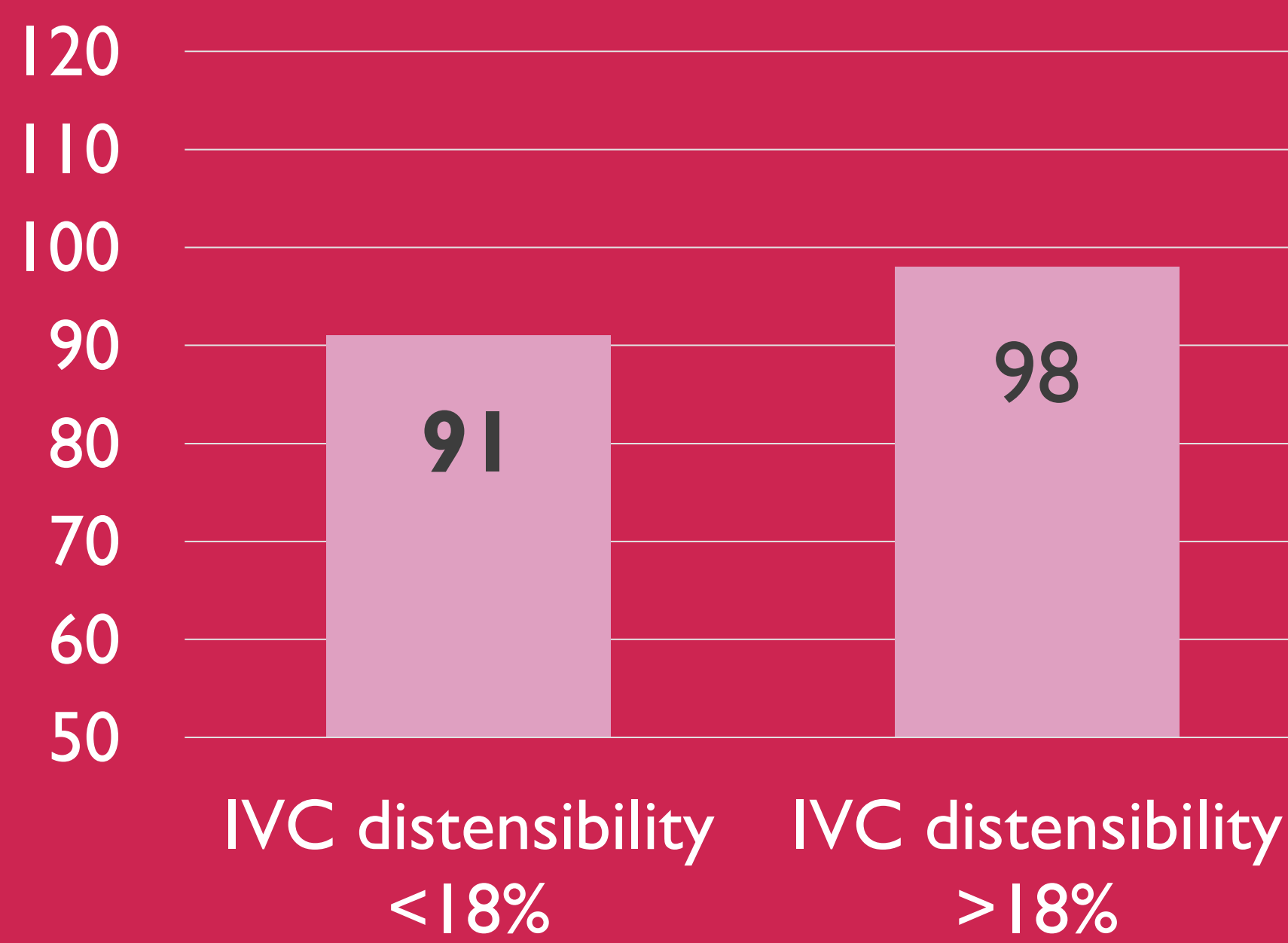
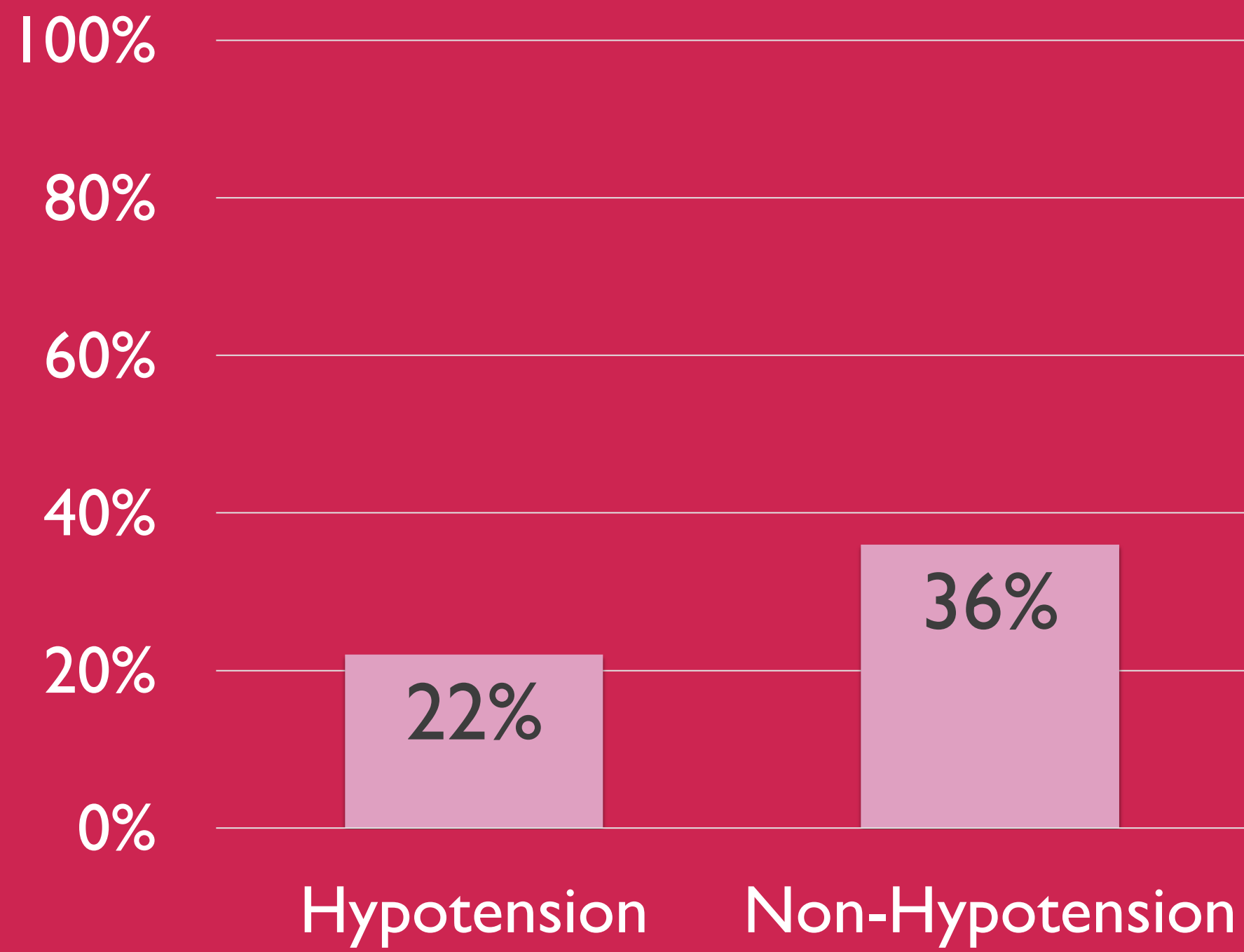


Figure 3: Increased IVC Distensibility



CONCLUSION

- **Although IVC distensibility was common after cardiac arrest it was not associated with post-cardiac arrest hypotension**
- Future research is required to test if IVC distensibility predicts fluid responsiveness after cardiac arrest